

# **EXPLOSIVES HAZARD REDUCTION (EHR) STUDIES JOINT OPERATIONS**

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## **Introduction**

In April 2008, Integrated Systems Analysts, Inc. (ISA) was tasked to participate in a joint study, "The Guam Joint Military Master Plan" to evaluate the feasibility of "harmonizing" explosives operations on the island of Guam. The focus of the study was to consolidate explosives storage and operations from the Army, Air Force, Navy and Marines at Andersen AFB and Navy Base, Guam.

## **Background**

ISA's objectives were to merge proposed explosives storage and operating facilities from each Service, maximize the Net Explosives Weight (NEW), maximize logistical flow, and meet the minimum square footage requirements for joint operations at each installation. The individual Services needed the ability to work independently of each other with no additional risks from other explosives storage or operations.

Airfield parking spots were identified at Andersen AFB for H-60 Helicopters, P-3/P8, and MV-22 aircraft. These parking spots meet the minimum NEW requirements and quantity-distances for joint airfield operations.

## **Study Recommendations**

Recommendations were presented to local Commanders and Headquarters staff agencies, each contained pros and cons unique to each Service represented. The proposed NEW's were based on the economic feasibility and practicality of siting proposed facilities to meet all operational, environmental and explosives Quantity Distance (QD) requirements.

Proposed facility requirements included; earth-covered magazines, maintenance assembly shops, inert storage pads, inert storage warehouses, miscellaneous support facilities and ISO pads

A comprehensive and innovative plan was developed that met existing and proposed operational requirements of all joint services. By implementing the plan, there were no explosives risks to non-related personnel or facilities, either on or off the installations.

## **Lessons Learned From EHR Studies**

There are many benefits to be realized from the current EHR study efforts. The most important is resolution of long standing explosives safety siting problems which limit mission capability at numerous installations. EHR studies conducted at various installations around the world have resulted in increased munitions storage capabilities, reduced explosives hazards, improved logistical flow, and more efficient combat aircraft parking and operations to name a few. Many of these capability increases were gained at little or no additional cost by more accurate application of safety criteria and improved planning efficiencies. An EHR study typically produces numerous recommendations concerning the use of existing facilities and the siting of future construction projects.

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Expansion of an existing or the development of a new munitions storage area must consider more than just explosives QD criteria. Other constraints may include, but are not limited to; airfield/airspace, environmental, on and off-base facilities, electro-magnetic radiation, clear distances to/from antennas, logistical flow, force protection, security, noise, and geo-political.

The EHR development process involves a number of factors. Reducing the risks associated with storage, handling, loading and transporting munitions. Siting facilities to optimize the use of available land and improve the logistical flow of explosives operations.

EHR studies have tremendously improved operational capabilities; assured optimal logistics survivability and minimized risks from explosives hazards. They have also provided installations with a road-map for future development / bed-down requirements ensuring proper execution of mission critical construction projects.

## **Summary**

Over the past 21 years, ISA has conducted EHR studies at over 50 locations worldwide, and has been extremely successful in saving the Department of Defence (DoD) several hundreds of millions of dollars by identifying explosives hazards and criteria violations early-on in project development and prior to the bed down of proposed joint missions. Many benefits have been gained at little or no additional cost by extreme accuracy in the application of QD criteria and improved planning efficiencies.

ISA was pleased to participate in the Guam Joint Study with the DDESB, other Services and contractors at Guam.



# Explosives Hazard Reduction (EHR) Studies Joint Operations



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from

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# ***EHR Goals & Objectives***



- **Identify / Quantify Explosives Hazards**
- **Minimize Risks**
- **Resolve long-standing Explosives Siting Problems**
- **Maximize Safety and Operational Capabilities**
- **Optimize Land Use for Future Construction Projects**
- **Provide Project Siting Recommendations**
- **Produce DDESB Compliant Explosives Safety Site plans**



# ***Planning Challenges***



- **Limited Real Estate**
- **Airfield/Airspace Restrictions**
- **Explosives Safety Siting Constraints**
- **Force Protection Requirements**
- **Noise Restrictions**
- **Environmental Constraints**
- **Host Nation / ICAO / NATO Directives**
- **Contingency Requirements**





# Proposed Facilities Joint Operations



## Andersen AFB:

- Parking for H60
- Parking for P3/P8
- Parking for MV-22
- ECMs
- Aboveground Magazines
- Maintenance Facilities/Shops

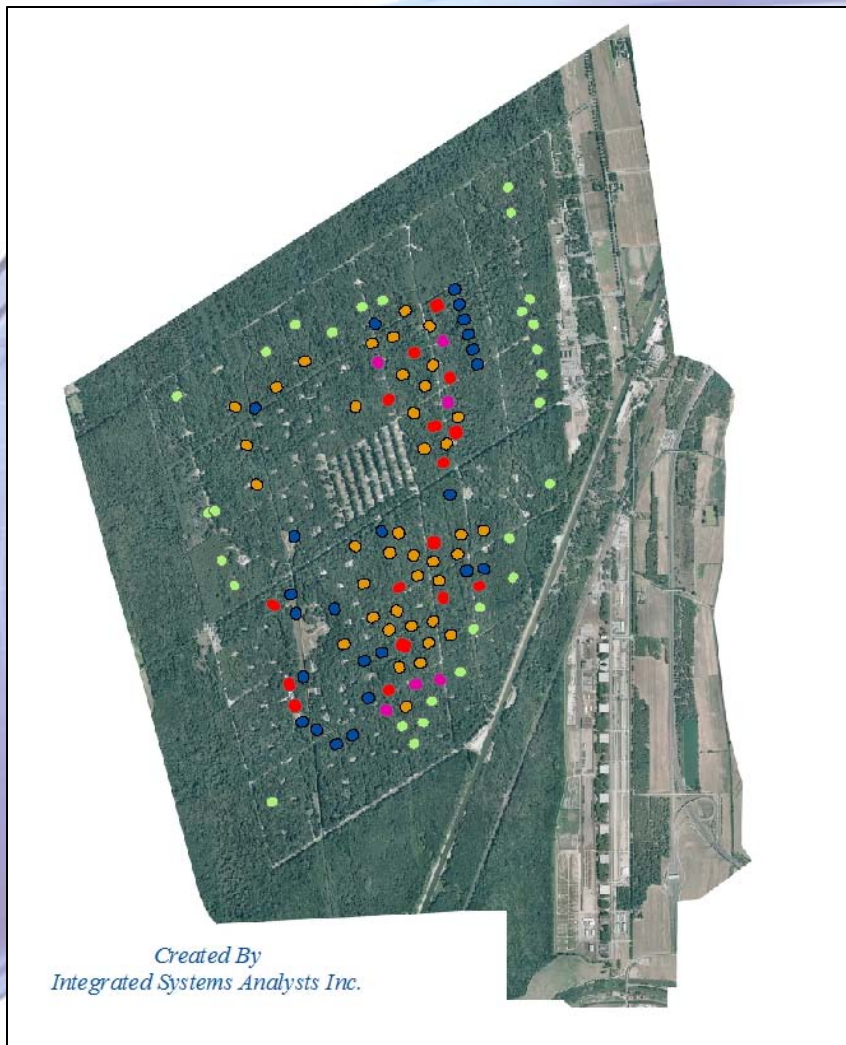


## Orote Peninsula:

- ECMs
- Open Pads
- Inert Warehouses
- Kilo Wharf



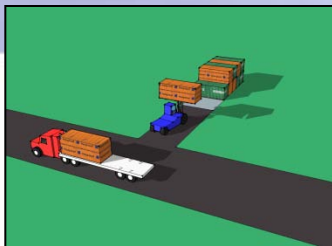
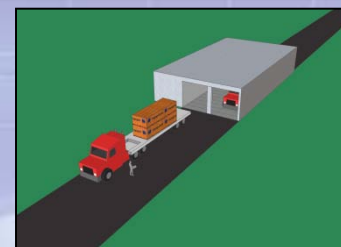
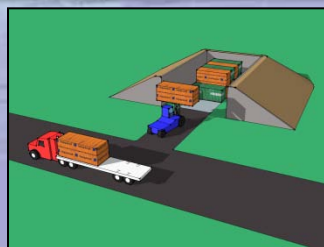
# Proposed Facilities Joint Operations



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## Camp Darby, Italy:

- Sited Open ISO Pads
- Met Mission Requirements
- Minimized Tree Cutting
- Minimized Cost of Barricades
- Automated Wash Rack
- Use ISO Trailers in MSA







# Proposed Facilities Joint Operations



## Osan AB, Korea:

- Consolidated 3 MSAs
  - MAGNUM (ROKAF)
- Met Mission Requirements
- Removed 9,300 Personnel From IBD
- ESP Development
  - 27 Exemptions to Uninhabited Areas



## Bagram AF, Afghanistan:

- Consolidated USAF / Army Facilities
- Met Mission Requirements
- Provide Efficient Operational Flow
- Removed Personnel From IBD
- ESP Development



# EHR Study Benefits



## A Balancing Act

### ASSET SURVIVABILITY



### OPERATIONAL CAPABILITY



- Validate munitions capability against day-to-day and contingency requirements
- Reduce MILCON dollars
  - Improved site layout & land use
  - Ties planning of future construction to project execution
- Consolidate explosives on fewer bases
- Evaluate and improve logistical flow
- Increase operational capabilities / surge
- Support rapid deployments
- Provide solutions for QD problems
- Explosives Site Planning
- Helps avoid costly mistakes



# ***EHR Lessons Learned***



- **EHR studies improve operational capabilities, assure optimal logistics survivability, and minimize risks from explosives**
- **EHR studies provide a road-map for future development / beddown requirements and ensure proper execution of mission critical construction projects**
- **EHR studies provide bases with solutions to long-standing explosives safety issues**
- **EHR studies, with site plan development, enhance senior leadership support/buy-in and shorten lengthy review/approval process**
- **EHR studies save time and money**